

FIGURE 1

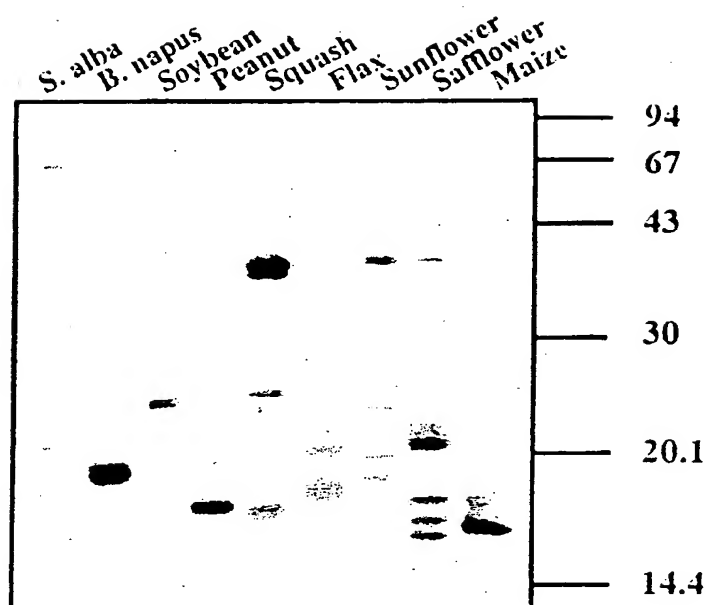


FIGURE 2

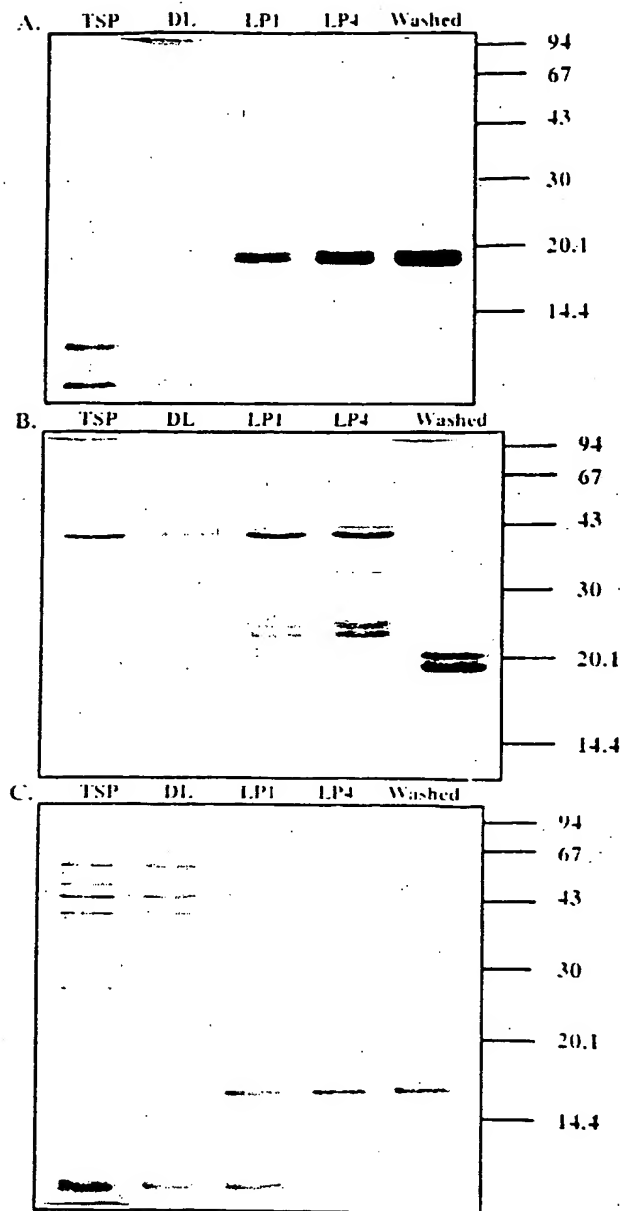


Figure 3: Oil Body Structure

A schematic representation of a plant oil-body. The oil-body contains a central core of triglyceride with a surface layer consisting of a phospholipid monolayer and a protein 'coat' consisting predominantly of oleosin. The model is not drawn to scale as the phospholipid and oleosin are greatly exaggerated for illustrative purposes.

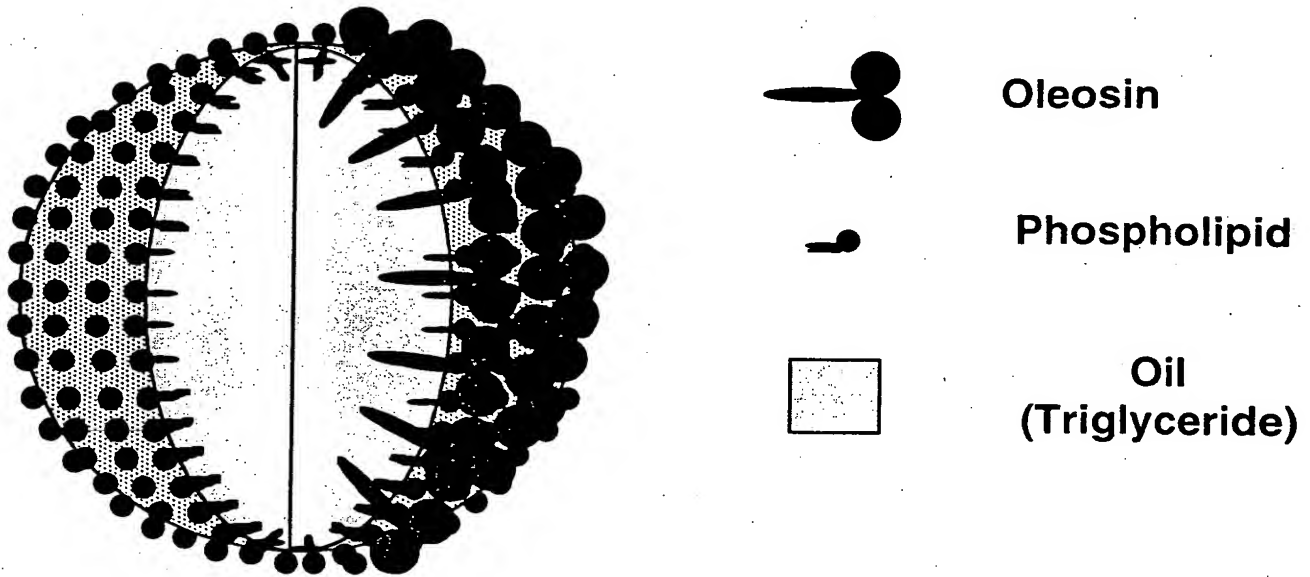


Figure 4. Antigen Coupled to Oil-Body

Antigen that is biotinylated enzymatically at the N-terminus is coupled to a biotinylated preparation of oil-bodies with streptavidin as a bridging ligand. This schematic drawing is not drawn to scale. The proteins (antigen, streptavidin & oleosin), phospholipid and biotin are exaggerated in size for illustrative purposes.

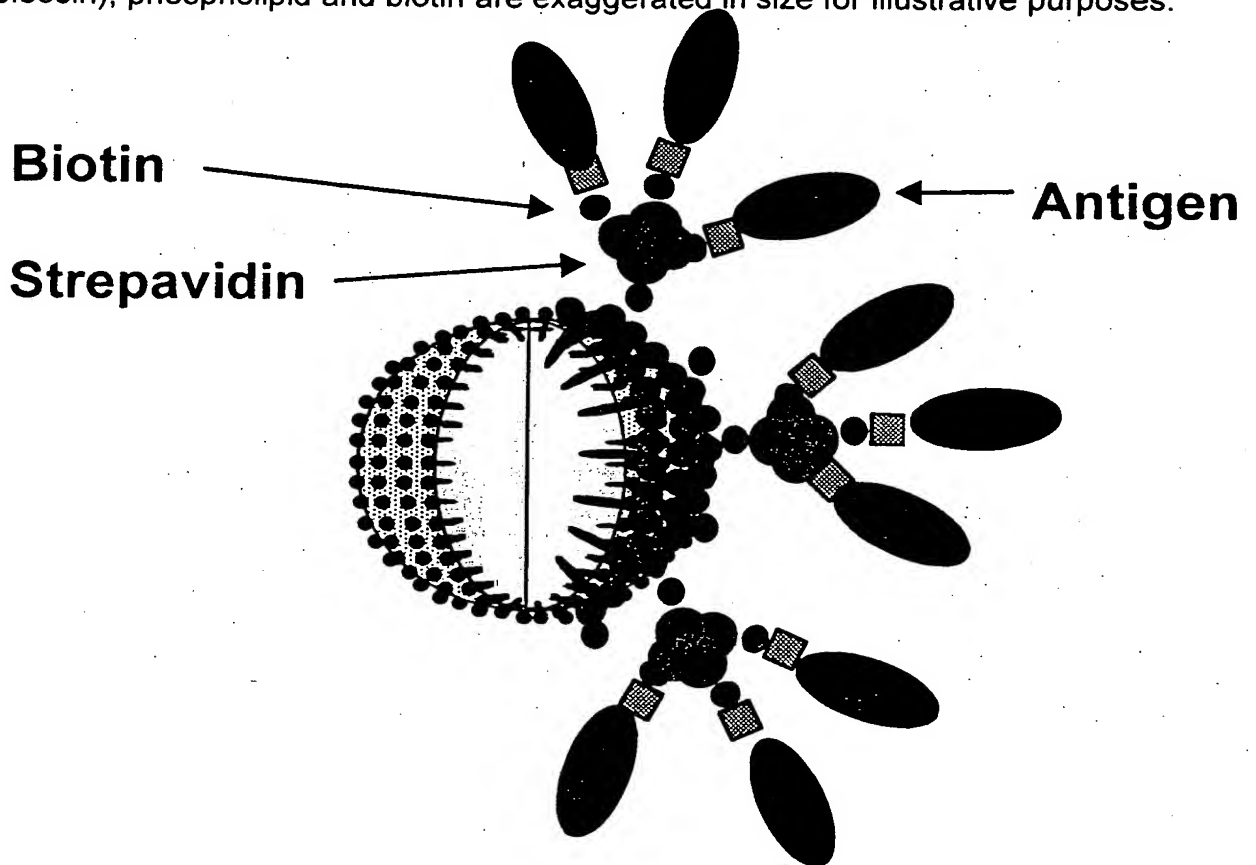


Figure 5: Transgenic Oil-Bodies Containing Antigen.

A schematic representation of transgenic oil-bodies expressing a foreign antigen as a fusion with the oil-body protein, oleosin. Fusions of antigen to oleosin C- or N-termini are targeted to oil-bodies along with native oleosins. The fused antigen is thus expressed at the oil-body surface similar to antigens on bacterial or viral surfaces. The relative size of the oil-body is dramatically underrepresented in this figure.

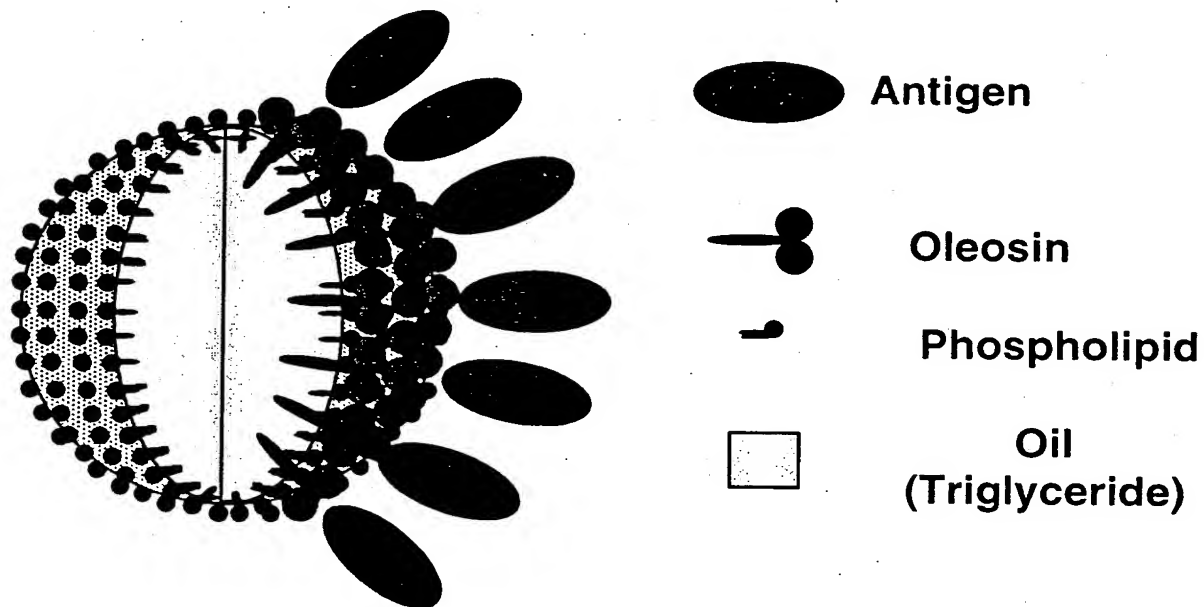
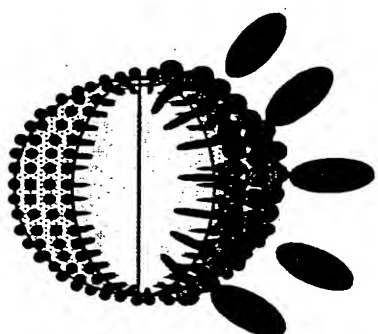
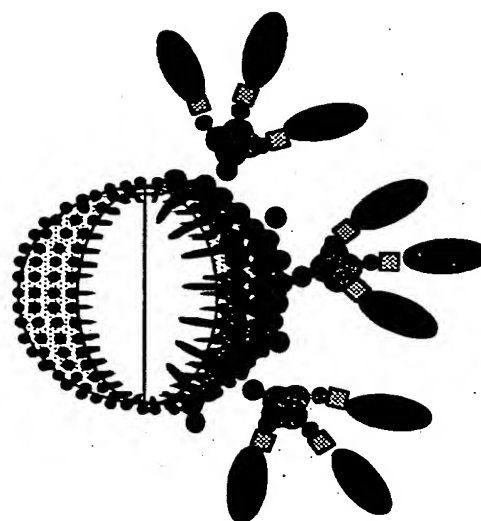


Figure 6: Comparison of Transgenic and Coupled Oil-Body for Antigen Presentation



**Transgenic Oil-body
Antigen Presentation**



**Coupled Oil-body
Antigen Presentation**

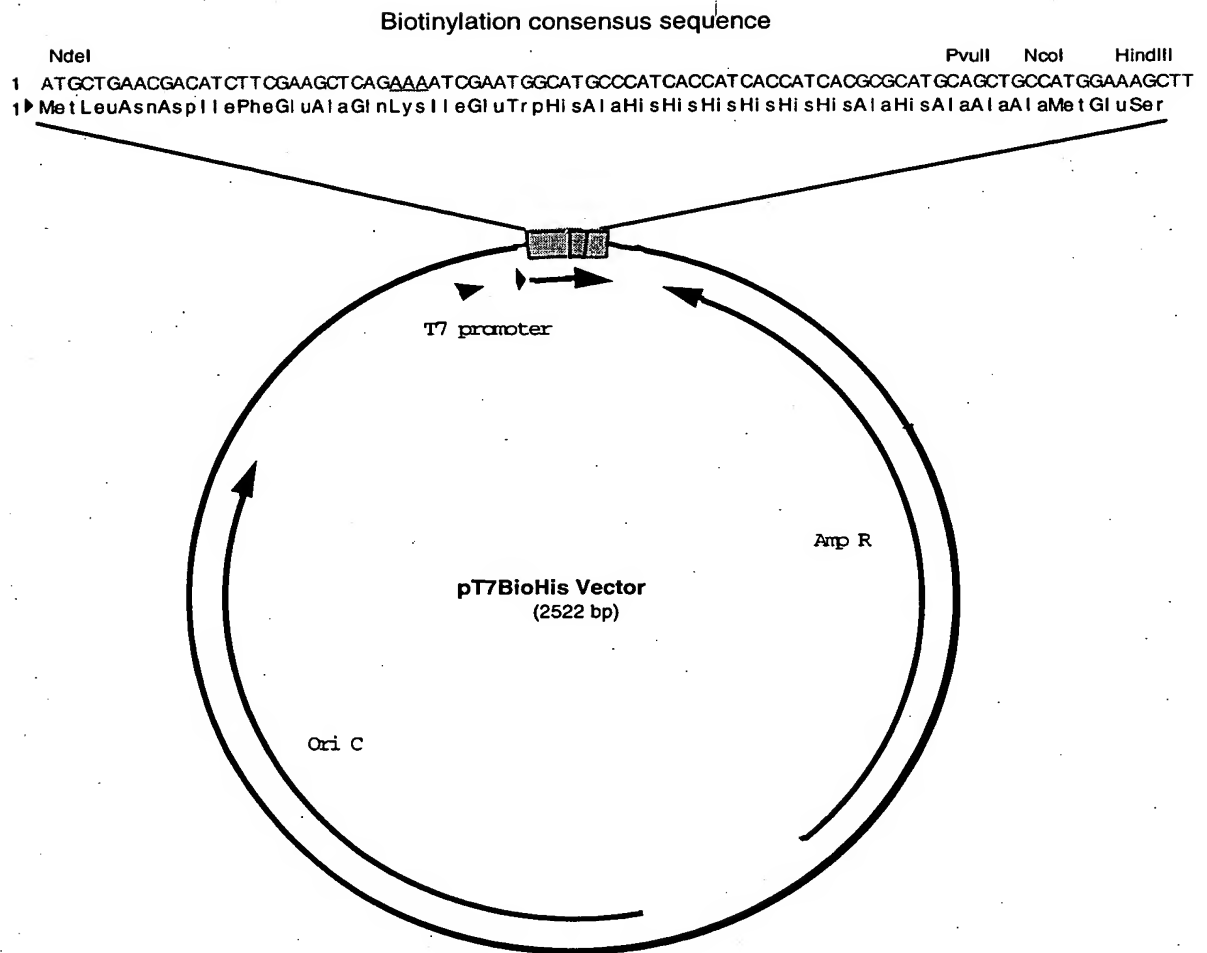


Figure 7. pT7BioHis Vector.

The essential features of the pT7BioHis vector are a T7 promoter for gene expression, the biotinylation consensus sequence shown in the green nucleotides where the epsilon amino group of the Lys residue (underlined) is biotinylated in *E. coli*, the blue nucleotides represent the 6XHis residues and the red nucleotides represent the multiple cloning site. Restriction sites are underlined for NdeI, PvuII, NcoI and HindIII.

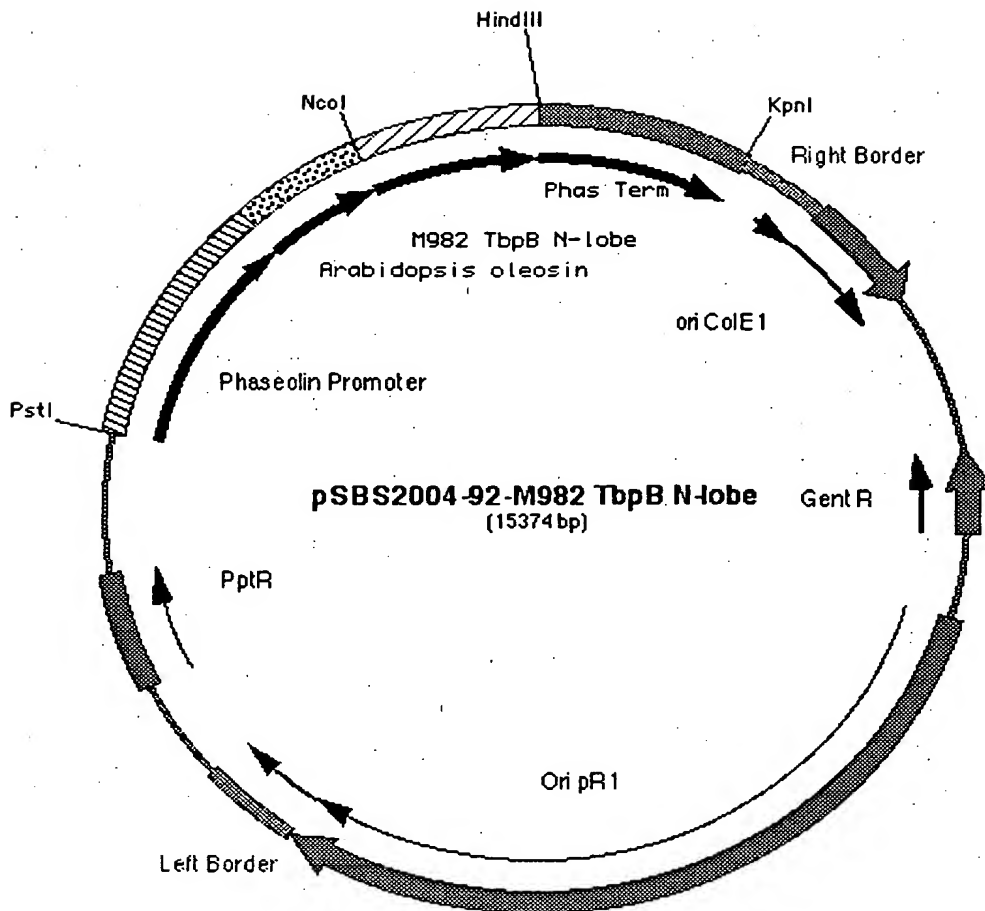


Figure 8: Plant Transformation Vector Encoding A Fusion Between Oleosin and the *Neisseria meningitidis* Transferrin Binding Protein B N-lobe. The essential features of pSBS2004-92 TbpB N-lobe are OriC and OripR1 for replication in *Escherichia coli* and *Agrobacterium tumefaciens*, respectively, and gentamycin resistance (GentR). The T-DNA segment that is get incorporated into the plant genome lies within the left and right borders and consists of the translational fusion between the Arabidopsis oleosin and M982 TbpB N-lobe driven is by the phaseolin promoter and its terminator and the herbicide selection marker, phosphinothricin (PptR).

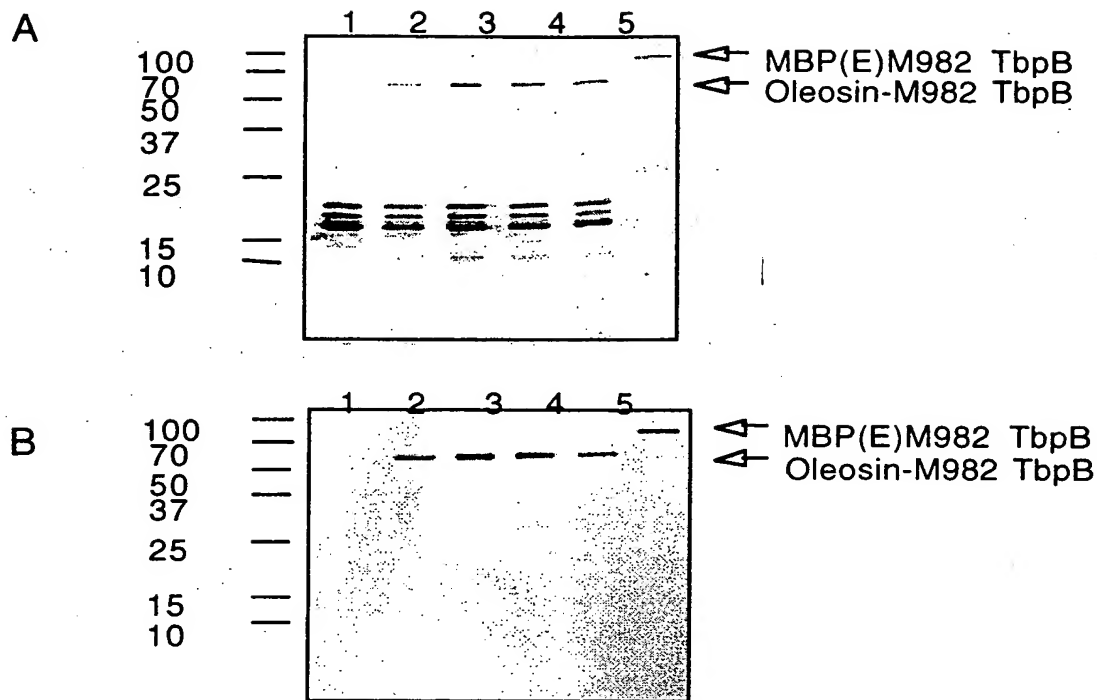


Figure 9. Analysis of *Arabidopsis* oil-bodies expressing oleosin-M982 TbpB N-lobe. Oil-bodies from several clones of transgenic *Arabidopsis* plants expressing the *N. meningitidis* strain M982 transferrin binding protein B (TbpB) N-lobe as a fusion with oleosin were analyzed for expression of fusion protein.

Panel A - A 15% SDS-PAGE gel stained for protein with Coomassie blue.

Panel B- A Western blot of the SDS-PAGE gel developed with polyclonal antibodies against M982 TbpB.

Lane 1-oil-bodies from wild *Arabidopsis* ; lane 2 - oil-bodies from N1 transgenic line; lane 3 - oil-bodies from N2 transgenic line; lane 4- oil-bodies from N3 transgenic line; lane 5 - oil-bodies from N4 line, and lane 6 - purified MBP-N-lobe fusion protein isolated from *E. coli*.

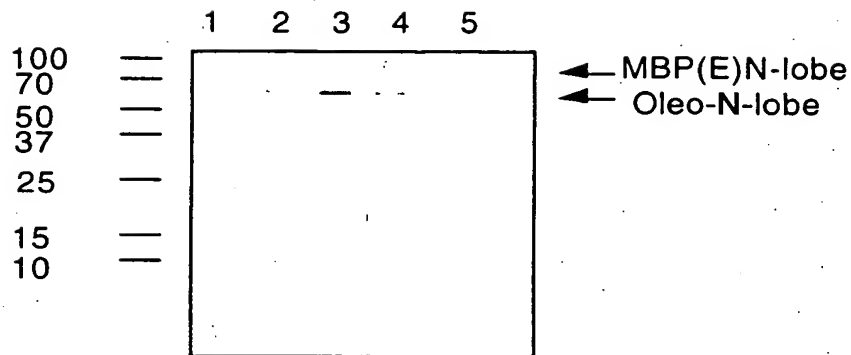


Figure 10. Transferrin binding analysis of transgenic *Arabidopsis* oilbodies expressing oleosin-M982 TbpB N-lobe.

Oil-bodies from several clones of transgenic *Arabidopsis* plants expressing the *N. meningitidis* strain M982 transferrin binding protein B (TbpB) N-lobe as a fusion with oleosin were analyzed for binding of human transferrin. A duplicate SDS-PAGE gel described in Figure 7 was electroblotted and subsequently probed with human transferrin conjugated to horse radish peroxidase.

Lane 1-oil-bodies from wild *Arabidopsis* ; lane 2 - oil-bodies from N1 transgenic line; lane 3 - oil-bodies from N2 transgenic line; lane 4- oil-bodies from N3 transgenic line; lane 5 - oil-bodies from N4 line, and lane 6 - purified MBP-N-lobe fusion protein isolated from *E. coli*.